

(12) United States Patent Clark

US 9,409,363 B2 (10) **Patent No.:** (45) **Date of Patent:** *Aug. 9, 2016

(54) METHOD OF MANUFACTURING BULKED **CONTINUOUS FILAMENTS**

Applicant: Mohawk Industries, Inc., Marietta, GA (71)

Thomas Clark, Chattanooga, TN (US) (72)Inventor:

(73)Assignee: Mohawk Industries, Inc., Marietta, GA

(US)

(*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35 U.S.C. 154(b) by 64 days.

This patent is subject to a terminal disclaimer.

Appl. No.: 14/256,261 (21)

(22)Filed: Apr. 18, 2014

(65)**Prior Publication Data**

US 2014/0225293 A1 Aug. 14, 2014

Related U.S. Application Data

- Continuation of application No. 13/892,713, filed on May 13, 2013, which is a division of application No. 13/721,955, filed on Dec. 20, 2012, now Pat. No. 8.597.553.
- Provisional application No. 61/654,016, filed on May 31, 2012.
- (51) **Int. Cl.** D01D 1/10 (2006.01)D01D 5/08 (2006.01)(Continued)
- (52) U.S. Cl. CPC B29D 99/0078 (2013.01); B29B 17/00 (2013.01); B29C 47/0014 (2013.01); (Continued)

(58) Field of Classification Search

CPC .. B29B 17/00; B29B 17/02; B29B 2017/001; B29B 2017/0015; B29B 2017/0203; B29C 47/0014; B29C 47/0071; B29C 47/365; B29C 47/366; B29C 47/42; B29C 47/48; B29C 47/50; B29C 47/70; B29C 47/702; B29C 47/765; B29C 47/766; B29C 47/767;

B29C 47/92; B29C 2947/922; B29C 2947/92514; B29D 99/0078; D01D 1/10; D01D 1/103; D01D 1/106; D01D 5/08; D01D 13/00; D01D 13/02; D01F 6/62; D02G 3/24 264/211.23 See application file for complete search history.

References Cited (56)

U.S. PATENT DOCUMENTS

3,938,924 A * 2/1976 Abella et al. 425/147 5,886,058 A * 3/1999 Van Erden et al. 521/48 (Continued)

FOREIGN PATENT DOCUMENTS

CN CN 202007825 U 12/2011 202072825 U 12/2011 (Continued)

International Preliminary Report on Patentability, dated Dec. 11, 2014, from corresponding International Application No. PCT/2013/ 040753.

OTHER PUBLICATIONS

(Continued)

Primary Examiner — Leo B Tentoni (74) Attorney, Agent, or Firm — Brient Globerman, LLC

(57)ABSTRACT

A method of manufacturing bulked continuous carpet filament which, in various embodiments, comprises: (A) grinding recycled PET bottles into a group of flakes; (B) washing the flakes; (C) identifying and removing impurities, including impure flakes, from the group of flakes; (D) passing the group of flakes through an MRS extruder while maintaining the pressure within the MRS portion of the MRS extruder below about 5 millibars; (E) passing the resulting polymer melt through at least one filter having a micron rating of less than about 50 microns; and (F) forming the recycled polymer into bulked continuous carpet filament that consists essentially of recycled PET.

20 Claims, 5 Drawing Sheets

